

The American Midland Naturalist

PUBLISHED BI-MONTHLY BY THE UNIVERSITY
OF NOTRE DAME, NOTRE DAME, INDIANA

VOL. IV.

NOVEMBER, 1916.

NO. 12.

ENUMERANTUR PLANTAE DAKOTAE SEPTENTRIONALIS VASCULARES.—IX.

ENUMERAVIT J. LUNELL.

The Vascular Plants of North Dakota.—IX.

With Notes by J. Lunell.

SYMPETALAE.

Family. 94. **PYROLACEAE** Agardh, Cl. Pl. 18. (1825).

PIROLA Brunfels, Cuba Hort. Sanit 316 (1485) (not found in Brunfels under the name *Pyrola*!) Dorsten, Lobel. (Obs. 156, sine descriptione), Clus., Fourn.—Antheras recte descripserunt Torrey, Fl. North Middl. Stat., 432, A. Gray, Chlor. Boreal. Amer. 17. (1846): Bubani.—Linn. Gen. n. 554.

792. *Pirola asarifolia* Michx. Fl. Bor. Am. I: 251. (1803).

Turtle Mountains: St. John.

793. *Pirola tenuior* Clus. Hist. 505. (1583).

Pyrola pannonica Cam. Hort. Germ. 135. (1588).

Pyrola minor Thalius, acc. to E. Bauhin. It could not be found in Thalius' Fl. Herc.

Pyrola secunda Linn. Sp. Pl. 396. (1753).

Turtle Mountains: St. John.

Family 95. **MONOTROPACEAE** Lindl. Nat. Syst. ed. 2: 219. (1836).

MONOTROPA Linn. Gen. no. 536, in part.

1221. *Monotropa uniflora* Linn. Sp. Pl. 387. (1753).

In woods of Sheyenne River, Anselm, Ransom Co., August 1916, (Brenckle & Stevens).

Family 96. **ERICACEAE** DC. Fl. Franc. 3: 675. (1805).

ARBUTUS Virgilius Ecl. III.: 82 Georg. 1: 148, etc. Tourn.

Arctostaphylos Galenus, Tourn, Adans. Lamk. = *Myrtillus*. Adans. Fam. Pl. II: 165. (1763).

Mairania Necker, Élém. Bot. Gen. 363. (1790). Is a monotypic genus: *M. alpina* (L.).

794. *Arbutus Uva ursi* Linn. Sp. Pl. 395. (1753).

Arctostaphylos Uva ursi (Linn.) Spreng. Syst. 2: 287. (1825).

Mairania Uva ursi Desv. Journ. Bot. 3: 38.

McHenry County: Sand Hills.

Family 97. **PRIMULACEAE** Vent. Tabl. 2: 285. (1799).

AMADEA Adans, Fam. II. 230. (1763).

Aretia Haller, Enum. 485. (1742), picked by Bubani, is *A. alpina* which even Linnaeus kept separate from *Androsace*; this name he borrowed from Dioscorides (3: 140), and it is not available because one does not know what it is.

795. *Amadea occidentalis* (Pursh) Lunell.

Androsace occidentalis Pursh, Fl. Am. Sept. 137. (1814).

Pleasant Lake, Towner, Williston.

796. *Amadea diffusa* (Small) Lunell.

Androsace diffusa Small, Bull. Torr. Bot. Club. 25: 318. (1898).

Leeds, Butte, Dunsieith; Dickinson (Cl. Waldron).

797. *Amadea puberulenta* (Rydb.) Lunell.

Androsace puberulenta Rydb. Bull. Torr. Bot. Club 30: 260. (1903).

From New Mexico to Manitoba, acc. to the Manuals.

STEIRONEMA Raf. Ann. Gen. Phys. 7: 192. (1820).

798. *Steironema pumilum* Greene, Leaflets II: 111. (1910).

Leeds, Butte.

799. *Steironema longipedicellatum* Lunell, comb. nov.

Steironema pumilum var. *longipedicellatum* Lunell, in A. Midl. Nat. Vol. II: 157. (1912). Stems ascending from narrow, slender, horizontal rootstocks. Leaves dark green, very thin, broadly ovate, obtuse or subcordate at the base. Filaments tapering from below upwards, of the same length as the anthers. Corolla 20—25 mm. diam., granular. Fruiting pedicels 3-5 cm. long, variously curved, as long as the subtending leaf, or often longer.

Leeds, Butte, Pleasant Lake, Bismarck.

800. *Steironema ciliatum* (Linn.) Raf. Am. Gen. Phys. 7: 192. (1820).

Lysimachia ciliata Linn. Sp. Pl. 147. (1753).

Leaves ovate or ovate-lanceolate, light green, firm. Filaments of equal thickness along their whole length. Anthers twice as long as the filaments. Corolla 25—30 mm. diam. Fruiting pedicels

shorter than the subtending leaf. These are the differential characters found in the plants we consider belonging to the species within the State, and *S. longipedicellatum* is its nearest ally.

Devils Lake, Turle Mountains.

801. *Steironema membranaceum* Greene, Leaflets II: 110. (1910).

Towner, Dunsieith.

802. *Steironema verticillatum* Greene, Leaflets II: 110. (1910).
Butte.

803. *Steironema verticillatum* var. *monstrosum* Lunell,
var. nov.

Rootstock short and thin, with a number of stout, long, fibrous roots. Stem branching freely almost from the base, with lanceolate leaves 4-5 cm. long, rather long-petioled; leaves of the branches broader, 2 cm. long, and of the numerous secondary branches with their almost innumerable verticils ovate, 1 cm. long. The plants though collected immediately before the frost, showed no signs of flower buds. Perhaps their excessive tendency toward leaf production exhausted their ability to complete their growth.

In swampy ground. Leeds.

804. *Steironema Lunellii* Greene, Leaflets II: 110. (1910).
Leeds, Butte.

NAUMBURGIA Moench, Meth. Suppl. 23. (1802).

805. *Naumburgia thyrsiflora* (Linn.) Duby in DC. Prodr.
8: 60. (1844).

Lysimachia thyrsiflora Linn. Sp. Pl. 147. (1753).

Naumburgia guttata Moench, Meth. Suppl. 23. (1802).

Pleasant Lake.

- GLAUROIDES* Ruppius, Fl. Jen. 20. (1745), also Fl. Jen.
16. (1726).

Glaux Diosc. 4: 139, and Plin. Nat. Hist. = *Eugalacton*. *Glaux* Clusius = *Astragalus Glaux*, Guilandino *Vulneraria rustica*?, Gesner *Onobrychis sativa*, Anguillara *Lotus*, etc., etc. *Glaux* Tourn. Linn. Gen. n. 291. On the assumption that *Glaux* Diosc. is a name that can never be used because no one can find it applicable, Ruppius' name holds.

806. *Glaucoides maritima* Rupp. l. c. 16. (1726).

Glaux maritima (Rupp.) Linn. Sp. Pl. 207. (1753).

Peninsula of Lake Ibsen, Butte, Barton.

MICROPYXIS Duby in DC. Prodr. VIII: 71. (1844).

Centunculus Dill *Centunculus* Diosc. = *Gnaphalium*. *Centunculus* Plinius = *Polygonum convolvulaceum*. Linn. Gen. n. 145

Anagallidastrum Micheli, accepted by Bubani, is an odious name.

807. *Micropyxis exigua* (Zorn.) Lunell.

Anagallidastrum exiguum Zorn in Pancov. Herbar. 867. Bubani, Flor. Pyr. I: 238. (1847), ex Michel.

Centunculus minimus Linn. Sp. Pl. 116. (1753).

Leeds; Kulm (Brenckle).

MEADIA Catesby Carol. 3. p. 1. (1731—1743). *Meadia Dodecatheon* Miller, Gard. Dict. VIII. (1768) = *Dodecatheon Meadia* Linn.

Dodecatheon Theophrastus, used for a different plant. *Dodecatheon* Plinius, Nat. Hist. 25: 4 vel 9, was acc. to Ruellius, G. Bauhin, Sprengel, etc. = *Primula veris* (the primrose). "Hanc sententiam amplectere non ausus sum."—Bubani. Still, in the mythology the primrose was thought to be under the special care of the twelve superior gods. (δώδεκα twelve, θεοί gods), and the name is older and better than *Primula*, which was used for the first time by Matthioli (1560). However, under no pretext can it be used as representing the American genus, though it is regrettable to have to dismiss such a beautiful name in favor of *Meadia*. But *Dodecatheon* is the logical name to replace *Primula*.

808. *Meadia thornensis* Lunell, comb nov.

Dodecatheon thornense Lunell in Am. Midl. Nat. Vol. III: 146. (1913) and 343. (1914).

Thorne.

Family 98. **OLEACEAE** Lindl. Nat. Syst. (1830).

LILAC Matthioli Comment Diosc. p. 1236. (1665). This is the first record of the plant. It was said to have come from Constantinople and east of Europe. *Lilac* Tour. Éls. 474. (1694). *Syringa* Dodonaeus Pempt. VI.: 2.16 = *Philadelphus*. The name *Philadelphus* has been used indiscriminately for the lilac, and for the mock orange, and is not a safe name to have. Even Dod. l. c. VI: 2.17—calls the plant *Lillach!* Lilac was called *Syringa coerulea* Doct.

809. **Lilac coerulea** (Doct.)

Syringa vulgaris Linn. Sp. Pl. 9 (1753).

Leeds.

810. **Lilac persica** (Linn.) Lunell.
Syringa persica Linn.
 Leeds.
CALYCOMELIA Kostelm. Allgem. Med. Fl. III: p. 1003.
 (1834).
Leptalix Rafinesque. New Fl. Am. III: p. 93. (1836).
Fraxinus (Virgilius) Linn. Sp. Pl. 1057. (1753), Gen. Pl.
 477. (1754), in part.
 811. **Calycomelia campestris** (Britt.) Nwd. & Lll.
Fraxinus campestris Britton in Ill. Fl., new ed.
 Devils Lake; Fargo (O. A. Stevens).
 812. **Calycomelia pennsylvanica** (Marsh.) Nwd. in Am.
 Midl. Nat. Vol. III: 186. (1914).
Fraxinus pennsylvanica Marsh. Arb. Am. 51. (1785).
 Fargo (O. A. Stevens).
 813. **Calycomelia lanceolata** (Borck). Lunell, comb. nov.
Fraxinus lanceolata. Borck. Handb. Torst. Bot. I: 126. (1800).
Fraxinus viridis Michx.f. Hist. Arb. Am. 3: 115. pl. 10. (1813)
 St. John, Pleasant Lake, Towner, Minot.
 Family 99. **GENTIANACEAE** Dumort, Anal. Fam. 20. (1829).
ANTHOPOGON Necker. Élé. Bot. II: 12 (1799) = *Deuckea*
 Raf. Med. Rep. V: p. 352 (1808).
 814. **Anthopogon procerum** Holm, var. **tonsum** Lunell,
 comb. nov.
Gentiana detonsa var. *tonsa* Lunell in Bull. Leeds Herb. no.
 2. p. 7. (1908).
 N. B. Flowers numerous, not seldom 15, in this var.
 Butte, Towner.
 815. **Anthopogon procerum** var. **tonsum** forma **uniflorum**
 Lunell, forma nova.
 In groups where each plant contains only a single flower.
 Butte, Towner.
AMARELLA Gesner, Epis. (1577—1591); Gilibert, Fl. Lith.
 I: 36. (1781).

ANALYTICAL KEY.

- A. Setae of the crown numerous..... *A. theiantha*.
 A. Setae of the crown few or none.
 B. Leaf-margins not scabrous; corolla 4—5-merous, 6—8mm.
 lerg. lilac colored; herbage darkened in drying..... *A. Gurliac*
 B. Leaf-margins scabrous, corolla 5-merous, 10—16 mm. long,
 with blue lobes; herbage remains green in drying..... *A. acuta*.

816. *Amarella Gurliae* Lunell in Am. Midl. Nat. Vol. II: 142. (1911).

Butte.

817. *Amarella acuta* (Michx.) Lunell.

Gentiana acuta Michx. Fl. Bor. Am. I: 177. (1803).

Pleasant Lake.

818. *Amarella theiantha* Lunell in Am. Midl. Nat. Vol. II: 143. (1911).

Flowers 5-merous; the tube quite closed, of a bright sulphur-yellow color, the lobes white; setae of the crown numerous, about 10 to each lobe, or altogether 50, and plainly discernible especially on the fresh plant. *A. strictiflora* (Rydb.) Greene has the flowers 4-merous, ochroleucous, and the tube open; setae of the crown few or wanting.

819. *Amarella theiantha* var. *lactea* Lunell in Am. Midl. Nat. Vol. III: 142. (1913).

Towner.

820. *Amarella theiantha* var. *livida* Lunell in Am. Midl. Nat. Vol. III: 142 (1913).

Butte.

- DASYSTEPHANA* Rensalmus, Specim. Hist. Pl. p. 68. f. 4. (1611); Adans. Fam. 502. (1763).

821. *Dasystephana affinis* (Griseb.) Rydb.

Gentiana affinis Griseb in Hook. Pl. Bor. Am. 2: 56. (1834).

Leeds, York.

822. *Dasystephana puberula* (Michx.) Small.

Gentiana puberula Michx. Fl. Bor. Am. I: 176. (1803).

Leeds.

823. *Dasystephana Andrewsii* var. *dakotica* (A. Nels.) Nwd. & Lll.

- Gentiana Andrewsii* var. *dakotica* A. Nels. in Bot. Gaz. XVI: 68. (1913).

Butte, Turtle Mountains.

- Family 100. **APOCYNACEAE** Lind. Nat. Syst. ed. 2: 299. (1836).

CYNOPAEMA (Gr. κύων dog, πῆμα, πό, a bane or sorrow to...) Lunell, nom. nov.

Apocynum Diosc. 4: 81 = *Αποκύων*, Sibth. Fl. Graeca = *Cynanchum erectum*. Tour. Linn. Gen. no. 305.

824. *Cynopaema androsaemifolium* (Linn.) Lunell.
Apocynum androsaemifolium Linn. Sp. Pl. 213. (1753).
 St. John, Bottineau, Devils Lake, Butte, Minot, Des Lacs;
 Ransom Co.: Anselm (Brenckle).
825. *Cynopaema cannabinum* (Linn.) Lunell.
Apocynum cannabinum Linn. Sp. Pl. 213. (1753).
 Butte; Missouri River (a narrow-leaved form, perhaps distinct,
 in the timber).
826. *Cynopaema hypericifolium* (Ait.) Lunell.
Apocynum hypericifolium Art. Hort. Kew I: 304. (1789).
 Leeds, Butte, Devils Lake.
 Family 101. **ASCLEPIADACEAE** Lindl. Nat. Syst. ed.
 2: 302. (1836).
ACERATES Ell. Bot. S. C. & Ga I: 316. (1817).
827. *Acerates viridiflora* (Raf.) Eaton, Man. Bot. ed. 5:
 90. (1829).
Asclepias viridiflora Raf. Med. Rep. (II.) 5: 360. (1808).
 Butte, Pleasant Lake, Sand Hills, Towner, Minot.
828. *Acerates Iversii* (Britt.) Woot. & Standl.
Asclepias lanceolata Ives, Am. Journ. Sci. I: 252. (1819),
 not Walt. (1788).
Acerates viridiflora Iversii Britton, Mem. Torr. Bot. Club 5:
 265. (1894).
 Sand Hills, Pleasant Lake.
829. *Acerates linearis* (A. Gray) Lunell.
Acerates viridiflora linearis A. Gray. Syn Fl. II. Part. I: 99.
 (1878).
 Pleasant Lake.
830. *Acerates lanuginosa* (Nutt.) Dec. in DC. Prodr. 8:
 523. (1844).
Ascerates lanuginosa (Nutt.) Dec. in DC. Prodr. 8: 523. (1844).
Asclepias lanuginosa Nutt. Gen. I: 168. (1818).
 Minot.
- ASCLEPIAS* Diosc. 3: 106 *Ἀσκλέπιας*, Sibth. Fl. Graeca,
 ibid. Tour. Linn. = *Asclepias Vincetoxicum*.
831. *Asclepias incarnata* Linn. Sp. Pl. 215. (1753).
Asclepias incarnata longifolia A. Gray, Syn. Fl. II, part I:
 99. (1878)

- Pleasant Lake; Wahpeton (Bergman).
832. *Asclepias speciosa* Torr. Ann. Lyc. N. Y. 2: 218. (1826).
Asclepias Douglasii Hook., Fl. Bor. Am. 2: 53, pl. 152. (1834).
 Leeds, Devils Lake, Minot.
833. *Asclepias ovalifolia* Dec. in DC. Prodr. 8: 567. (1844).
 Leeds, Butte.
834. *Asclepias verticillata* Linn. Sp. Pl. 217. (1753).
 Leeds, Butte.
- Family. 102. **CONVOLVULACEAE** Vent. Tabl. 2: 394.
 (1799).
- PHARBITIS* Choisy, Mem Soc Phys Genev. VI: 438.
 (1833).
835. *Pharbitis purpurea* (Linn.)
Ipomaea purpurea (Linn.) Roth, Bot. Abh. 27. (1787).
Convolvulus purpureus Linn. Sp. Pl. ed. 2: 219. (1762).
 Rolette Co.: Ox Creek.
- CONVOLVULUS* Plinius XXI: 5, Tour. Élé. 72. (1694),
 Linn. Gen. 47. (1737), 76. (1754).
836. *Convolvulus maior* Gesn. Hort. Germ. 255a (1561),
 also *Caesalpinus*, *Lobelius*.
Convolvulus Sepium Linn. Sp. Pl. 153. (1753): *κλύμενον*
 Sibth. Fl. Graeca. Diosc. 4: 13.
 Banks of Souris River at Minot.
837. *Convolvulus repens* Linn. Sp. Pl. 153. (1753).
 Leeds, Towner.
838. *Convolvulus interior* House, Bull. Torr. Bot. Club
 32: 140. (1905). An oracular name!
 Leeds.
839. *Convolvulus americanus* (Sims) Greene, Pittonia III:
 328. (1898).
Convolvulus Sepium var. *americanus* Sims, Bot. Mag. t. 732.
 (1804).
 Peninsula of Lake Ibsen, Towner.
840. *Convolvulus minor* Diosc. *περικλύμενον* Diosc. 4:
 14. (Sibth. Fl. Graeca), *Ἐλζίνη* (Fl. Gr.), *κισσαμπελος* Diosc.
 4: 39; Gesner, Hort. Germ.; *Caesalp.*, *Clusius*, *Gilib.*
Convolvulus arvensis Linn. Sp. Pl. 153. (1753).
Convolvulus ambigens House, Bull. Torr. Bot. Club. 32.
 139. (1905).
 Fargo (Cl. Waldron).

Family 103. **CUSCUTACEAE** Dumort. Anal. Fam. 20. (1829).

EPITHYMUM Plinius XXI: 8, also XXVI: 4, etc. *Epithymon* Diosc. IV: 179.

Cassytha Tragus, Hist. 196. (1552), not of ancient Romans.

Cuscuta Dorsten, Tour., Linn. Gen. no. 170, Engelm. Cusc. (1859).

841. ***Epithymum arvense*** (Beyrich), Nwd. & Lll.

Cuscuta arvensis Beyrich; Hook. Fl. Bor. Am. 2: 77. (1834).

Kulm (Brenckle).

842. ***Epithymum plattense*** (A. Nels.) Nwd. & Lll.

Cuscuta Plattensis A. Nels. Bull. Torr. Bot. Club 26: 131. (1899).

Peninsula of Lake Ibsen, Pleasant Lake, Dunsieith, Jamestown, Minot.

843. ***Epithymum Cephalanthi*** (Engelm.) Nwd. & Lll.

Cuscuta Cephalanthi Engelm. Am. Journ. Sci. 43: 336. (1842). Towner.

844. ***Epithymum Coryli*** (Engelm.) Nwd. & Lll.

Cuscuta Coryli Engelm. Am. Journ. Sci. 43: 337. (1842).

Turtle Mountains, Jamestown; Fort Ransom (O. A. Stevens).

1217. ***Epithymum indecorum*** (Choisy) Nwd. & Lll.

Cuscuta indecora Choisy, Mem. Soc. Gen. 9: 278. (1841).

Fort Totten.)

1218. ***Epithymum Gronovii*** (Willd.) Nwd. & Lll.

Cuscuta Gronovii Willd.; R. & S. Syst. 6: 205. (1820).

"Fargo... *C. Plattensis* seems closely related to *C. Gronovii* which it replaces west of the Red River valley, according to material at hand."*)

*Vide Notes on the distribution and growth of North Dakota Cuscutae in Am. Journ. Bot. 3: 185—188. (1916), by Prof. O. A. Stevens.

Family 104. **POLEMONIACEAE** DC. Fl. Franc. 3: 645. (1805).

FOONNA Adanson, Fam., Pl. 214. (1763).

Phlox was used by Theophrastus as *Phlogionon* or *Phlogion* for a *Lychnis* (acc. to Linnaeus). Anguillara called the *Phlox* Theoph. an *Amaranth* (*Celosia*?), others a pansy. Plukenett, Ray changed the name to *Lychnidia* l. *Lychnides*. Linnaeus took up *Phlox*, and he says in Hort. Cliff. 63: "Phlox est nomen quoddam Theophrasti desumptum a floris flameo igneoque colore hinc ad *Lychnidum* a plurimis relatum familiam quod cum ibi superfluum

sit hujus generis fecimus, cum ad maximam partem flores flameos et rubros proferat Lychnidibusque a facie externa affinis videatur nobis non placet ista nominum apendiculatio quae apud syrones majore non placet ista nominum appendiculation quae apud tyrones majorem confusionem quam ullus error producit."

Lychnidea was applied by Lobelius (1576, earlier than Ray etc.) to a *Silene* or *Lychnis*! Hence it will seem that *Fonna* is the valid name.

845. **Fonna Kelsyi** (Britton) Nwd. & Lll.

Phlox Kelsyi Britton, Bull. Torr. Bot. Club 10: 225. (1892).

In the western part of the state.

846. **Fonna Hoodii** (Richards.) Nwd. & Lll.

Phlox Hoodii Richards. App. Frank Jour. 733. (1823).

Leeds, Butte, Pleasant Lake.

COLLOMIA Nutt. Gen. I: 126. (1818).

847. **Collomia linearis** Nutt. Gen. I: 126. (1818).

Leeds, Butte.

848. **Collomia linearis** var. **congesta** Lunell, var. nov.

While the type has a slender, simple stem even late in the season, this variety is throughout the summer stout and profusely branched almost along the whole length of the stem.

Leeds.

849. **Collomia linearis** var. **picta** Lunell in Bull. Leeds Herb. no. 2, p. 7. (1908). Butte.

NAVARRETIA R. & P. Prodr. Fl. Per. & Chil. 20. (1794).

850. **Navarretia minima** Nutt. Jour. Acad. Nat. Sci. Phila. (II.) I: 160. (1848).

Morton County.

Family 105. **HYDROPHYLLAEAE** Dumortier, Fam. 73. (1829), Richards. Frank. Jour. App. 764. (1823).

HYDROPHYLLON Morin; Jonquet, Hort. 46 ex. Tour. Élém. 71. (1694), also I. R. H. 81. (1700).

851. **Hydrophyllon Morini** Jonquet l. c. (1659).

This is Linnaean *Hydrophyllum virginicum* Sp. Pl. 146. (1753) with a good binary name.

"*Hydrophyllon* est composé des mots Gr. ὕδωρ eau and φύλλον feuille. On doit ce nom à Mr. Morin, fameux fleuriste de Paris, mais on ne sait pas quelle raison il a eu d'appeler cette plante feuille d'eau."—Tour. Élém. l. c. 71. 72.

Grand Forks, Fargo.

MACROCALYX Trew, Nov. Act. Nat. Cur. 2:330—332 (1761).

852. *Macrocalyx Nyctelea* (Linn.) Kuntze. Rev. Gen. Pl. 434. (1891).

Ipomaea Nyctelea Linn. Sp. Pl. 160. (1753).

Ellisia Nyctelea Linn. Spl Pl. ed. 2. 1662. (1763).

Leeds, Peninsula of Lake Ibsen.

PHACELIA Jussieu, Gen. Pl. 127. (1789).

853. *Phacelia leucophylla* Torr. Frem. Rep. 93. (1845).

Medora (Bergman).

Family 1c6. **ASPERIFOLIAE** Haller, Hist. (1742).

Asperifoliae Ray. Meth. XII. p. 94 & 95. (1682): "Asperifoliae appellantur huius generis herbae quia folia plerisque aspera sunt. Florum in his spicae extremæ reflexæ antequam flores aperiuntur caudæ Scorpii in modum contorquentur." Ray. l. c. 95 (Nota in fine diagnoseos 13 generum familiae). *Boraginæ* Juss. 143. (1789).

HELIOTROPIUM Theoph., Diosc. 4:93, Tourn., Endlicher; Linn. Gen. 37. (1737).

854. *Heliotropium curassavicum* Breyn. Prodr. 2: 55. (1689), ed. 2. 70. (1739); Kiggelaer. Hort. Beaum. Hag. Com. 24. (1690); Herm. Parad. Batav. 340.

Mud Lake (Benson Co.), Barton, Thorne.

855. *CYNOGLOSSUM* Diosc. 4: 129. Tourn. Linn. Gen. n. 100. p. 36. (1737), also Linn. Phil. Bot. (1751) & Zinn (1757); Gerard (1761).

Along the Missouri. (Only very young plants without flowers or fruits).

LAPPULA Guill. Cusa, Hist. Gen. Lgd.; Moench. Meth. 416. (1794).

Echinospermum Sw.; Lehm. Asperif. 113. (1818).

856. *Lappula echinata* Gilib. Excerc. Phyt. (1792.)

Lappula Lappula Karst. Deutsch. Fl. 979. (1880-83).

Leeds; Kulm (Brenckle).

857. *Lappula texana* (Scheele) Britton, Mem. Torr. Bot. Club. 5: 273. (1894).

Echinospermum texanum Scheele, Linnaea 25; 260. (1852).

Leeds.

858. *Lappula floribunda* (Lehm) Greene, Pittonia 2: 182. (1891).

- Echinospermum floribundum* Lehm in Hook. Fl. Bor. Am 2: 84, pl. 164. (1834).
 Peninsula of Lake Ibsen.
 859. *Lappula americana* Rydb. Bull. Torr. Bot. Club 24: 294. (1897).
Echinospermum deflexum var. *americanum* A. Gray, Proc. Am. Acad. 17: 224. (1882).
 Peninsula of Lake Ibsen, Butte, Devils Lake.
ALLOCARYA Greene, Pittonia I: 12. (1887).
 860. *Allocarya scopulorum* Greene, Pittonia I: 16. (1887).
 Hebron (Bergman).
OREOCARYA Greene, Pittonia 1: 57. (1887).
 861. *Oreocarya glomerata* (Pursh) Greene, Pittonia I: 58. (1887).
Cynoglossum glomeratum Pursh, Fl. Am. Sept. 729. (1814).
Eritrichium glomeratum DC. Prodr. 10: 131. (1846).
Krynitzkia glomerata A. Gray, Proc. Am. Acad. 20: 279. (1885), in part.
 Minot.
AMSINCKIA Lehm. Del. Sem. Hamb. 7. (1831).
 862. *Amsinckia lycopsoides* Lehm. l. c. (name only); DC. Prodr. X: 117. (1846).
 Pembina (Bergman).
MERTENSIA Roth, Catal. Bot. I: 34. (1797).
 863. *Mertensia foliosa* A. Nels. Bull. Torr. Bot. Club 26: 243. (1899).
 Willow City, Minot; Dickinson (Cl. Waldron).
 864. *Mertensia coronata* A. Nels. Torr. Bot. Club 29: 403. (1902).
 Williston.
LITHOSPERMUM Diosc. 3: 148, also Plin. 27: 74, Tourn. I. R. H. 55, Linn. Gen. 30. (1737).
 865. *Lithospermum canescens* (Michx.) Lehm, Asperif. 305. (1818).
Batschia canescens Michx., Fl. Am. Bor. I: 130, pl. 14, (1803).
 Leeds, Butte, Dunsieith.
CYPHORIMA Rafinesque, Am. Month. Mag. p. 191. 357. (1819), Cat. 13. (1824).
Lithospermum Linn. or *Batschia* Gmelin, in part.
 866. *Cyphorima linearifolia* (Caldie), comb. nov.

Lithospermum linearifolium Goldie, Edinb. Phil. Journ. 319. (1822).

Lithospermum angustifolium Michx., Fl. Bor. Am. I: 130. (1803). Not Forsk. Fl. Egypt. Arab. 39. (1775).

Batschia longiflora Nuttall, Gen. Pl. I: 114. (1818).

Leeds, Butte, Pleasant Lake, Minot; Kulm (Brenckle).

867. *Cyphorima mandanensis* (Spreng.) comb. nov.

Lithospermum mandanense Spreng. Syst I: 544. (1825).

Orig. description: "L. mandanense 18 L. caule decumbente foliisque linearibus villosis floribus sparsis limbi segmentis fimbriato-crenatis. Ad. fl. Missouri. (*Batschia decumbens* Nuttall)." (ad. orig. cong.)

Morton County.

ONOSMODIUM Michx. Fl. Bor. Am. I: 132. (1803).

868. *Onosmodium occidentale* Mackenzie, Bull. Torr. Bot. Clyb 32: 502. (1905).

Leeds, Butte, Pleasant Lake.

Family 107. **VERBENACEAE** J. St. Hil. Expos. Fam. I: 245. (1805).

VERBENA Cuba, Hort. Sanit. 112 (1485), as substantiated by Nwd. Aug. 2, 1916 in Eurgeon Gen. Lib., Wash. DC. Brunfels, Lon. Ges. Trag. *ἑρα βοτάνη* Diosc. Plinius has *Verbenaca* XXV: 9 used also in this form by several authors: Math. Loc. Cast. Fuchs. Hist. 340. (1549), Cord. Dod. Caes Cam. Clus. Called *Verbenarius* by Plinius XXII: 2. *Verbena* Tour. Linn.

869. *Verbena urticaefolia* Linn. Sp. Pl. 20. (1753).

Jamestown; Harwood (Bergman).

870. *Verbena hastata* Linn. Sp. Pl. 20. (1753).

Peninsula of Lake Ibsen, Butte, Devils Lake.

871. *Verbena bracteosa* Michx. Fl. Bor. Am. 2: 13. (1803).

Leeds, Peninsula of Lake Ibsen, Butte.

Family 108. **LABIATAE** B. Juss. Hort. Triaren (1759).

TEUCRIUM Dioscorides 3: 101, Linn.

872. *Teucrium occidentale* A. Gray, Syn. Fl. 2: 1. 349. (1878).

Leeds, Peninsula of Lake Ibsen, Pleasant Lake.

CASSIDA Columna, Ecphr. p. 187. (1616). Tourn. Dill. Haller, Scop. Ludvig, Moench. Boehmer.

Scutellaria Cortuso, J. Bauhin 3, p. 291. (1651).

873. *Cassida galericulata* Cæsalpius, Herb. Thornab. fol. 126. n. 328. (1563); Scop. Fl. Carn. c. 12, n. 741.

- Scutellaria galericulata* Linn. Sp. Pl. 599. (1753).
Pleasant Lake, Peninsula of Lake Ibsen, Sheyenne.
874. *Cassida lateriflora* (Linn.) Lunell, comb. nov.
Scutellaria lateriflora Linn. Sp. Pl. 598. (1753).
Towner, Dunsieith.
875. *Cassida parvula* (Michx.) Lunell, comb. nov.
Scutellaria parvula Michx. Fl. Bor. Am. 2: 11. (1803).
Scutellaria ambigua Nutt. Gen. 2: 37. (1818).
Fargo (Cl. Waldron & O. A. Stevens).
- AGASTACHE** Clayt.: Gron. Fl. Virg. 88. (1762).
Vleckia Raf. Med. Rep. (II.) V: 308. (1808).
Lophanthus Benth. Bot. Reg. 15. (1829). Not Adans. (1763).
Synonym of Linn. in Hort. Cliff. p. 162 (1748), but only in part.
876. *Agastache anethiodora* (Nutt.) Britton, Ill. Fl. 3: 85. (1898).
Hyssopus anethiodorus Nutt. Fras. Cat. (1813).
Hyssopus anisatus Nutt. Gen. II: 27. (1818).
Lophanthus anisatus Benth. Bot. Reg. (1829).
Vleckia anisata Raf. Fl. Tell. 3: 89 (1836).
Vleckia anethiodora Greene, Mem. Torr. Bot. Club 5: 282. (1894).
Turtle Mountains, Dunsieith, Devils Lake.
- CATARIA** Pena & Lobelius, Adv. 19. (1576); Tourn. I R. H. 202; Boer. Lugd. Bat. 174; Hall Helv. 108; Ludw. Def. Gen. 285; Adans. Fam. Pl. 192, 534; Gilib Exerc. Phyt. 89. (1792), acc. to Bubani.
- Nepeta* Tragus, Hist. (1552), not of ancients; Diosc. ed. Saracen. 454 = *Mentha*. *Nepeta* Plinius, Nat. Hist. 19: 17 vel 47 = *Melissa Nepeta*.
877. *Cataria tomentosa* Gilibert, Excere. Phyt. 89. p. 12. (1792.)
Nepeta Cataria Linn. Sp. Pl. 570. (1753).
Peninsula of Lake Ibsen. Seemingly native.
- CHAMAECISSOS** Fuchs. Hist. 506. (1549); *χαμαικισσος* acc. to Daubeny.
- Chamaeclema* Cord. Hist. 161. (1561). Vaill. Hall. Boerhave. Ludw. Moench, Meth. 393. (1794), acc to Bubani.
- Glechoma* Linn. Gen. 171. (1737).
878. *Chamaecissos hederaceus* (Linn.) Nwd. & Lll.
Chamaeclema hederacea Moench, Meth. 393. (1794).
Glechoma hederacea Linn. Sp. Pl. 578. (1753).

Wahpeton (Bergman).

DRACOCEPHALUM Morison, Hist. Pl. Oxon. 3: 364. (1669); Linn

879. *Dracocephalum parviflorum* Nutt. Gen. 2: 35. (1818).

Moldarica parviflora (Nutt). Britt. Ill. Fl. ed. 2, 3: 114. (1913).
Turtle Mountains.

880. *Dracocephalum parviflorum* var. *chelonicum* Lunell, var. nov.

Folia lanceolata, in dimidia parte superiore caulis aristato-dentata, inferiora basi cordata ovata. Flores venuste rubicundi.

Leaves lanceolate, on the upper half of the stem having aristate teeth; the lower leaves ovate with cordate base. Flowers a beautiful pink.

Turtle Mountains.

881. *Dracocephalum thymiflorum* Linn. Sp. Pl. 596. (1753).
In a bromegrass field, Belfield (O. A. Stevens).

PRUNELLA Fuchs, Hist. Stirp, 212a (1546), ed. without illustration, also 621. (1549); Tragus, Stirp, Hist. 310. (1552).

882. *Prunella vulgaris* Tragus l. c. (1552); Linn. Sp. Pl. 600. (1753).

Butte, Pleasant Lake.

PHYSOSTEGIA Benth. Lab. Gen. & Sp. 504. (1834).

883. *Physostegia formosior* Lunell in Bull. Leeds Herb. No. 2, p. 7. (1908).

Minot, Towner. Its range has been extended even as far as to Illinois vide [Earl E. Sherff, Vegetation of Skokie Marsh, in Bull. Ill. State Lab. Nat. Hist. Vol. IX: 606. (1913)]

LIST OF THE NAIADES OF THE MERAMEC RIVER, MISSOURI.

BY N. M. GRIER.

The recent work of Utterback¹ on the "Naiades of Missouri" anticipated to a certain extent efforts along similar lines by the writer. Collections had been made at various points along the Meramec River, and the specimens secured identified with the

¹ American Midland Naturalist. Vol. IV. 3—10 Inclusive.

aid of Dr. A. E. Ortmann. Since the Meramec is in great danger of depopulation of its Naiades through ravages of pearl hunters, etc., it is thought worth while to publish the following list:—

Family Unioniade (Swainson)

1. *Fusconaia undata trigona* (Lea)
2. *Amblema (plicata) costata* (Raf.)
3. *Megalonais heros* (Say)
4. *Quadrula pustulosa schoolcraftensis* (Lea)
5. *Quadrula verrucosa* (Raf.)
6. *Quadrula metanevra* (Raf.)
7. *Rotundaria tuberculata* (Raf.)
8. *Pleurobema aesopus* (Green).
9. *Pleurobema obliquum plenum* (Lea).
10. *Pleurobema obliquum pyramidatum* (Lea)
11. *Elliptio nigra* (Raf.)
12. *Elliptio dilatata* (Raf.)
13. *Strophitus edentulus* (Say)
14. *Obliquaria reflexa* (Raf.)
15. *Nephronais ligamentina* (Lane)
16. *Amygdalonais donaciformis* (Lea)
17. *Amygdalonais truncata* (Raf.)
18. *Plagiola securis* (Lea)
19. *Lampsilis anodontoides* (Lea)

Central High School, St. Louis, Mo.

PARASITISM AMONG MISSOURI NAIADES.¹

BY W. I. UTTERBACK.

This paper would consider only the subject of parasitism in the sense of the *Naiades*, or Fresh-water Mussels, as hosts and not as parasites. As well known among students of *Naiades* nearly all the Species are parasitic in the glochidial, or larval, life on fish hosts, the two notable exceptions, so far known, being in case of *Strophitus edentulus*² and *Lastena ohioensis*, (= *Anondota*

¹ Contribution, (in part), from U. S. Biological Station, Fairport, Iowa. Published by permission of the Commissioner of Fisheries.

² George Lefevre and W. C. Curtis, U. S. Bu. Fish. Doc. No. 756, XXX, pp. 171-174. 1912.

*in becillis*³). However, reference should be made to the author's descriptive and illustrated catalogue of *Missouri Naiades*⁴ for detailed accounts of Mussels as parasites as well as that of the juvenile and adult life. In this present report the writer would employ the same revised nomenclature as used in his general catalogue. This revision is made necessary because of the recent revival of *Rafinesque's Priority*⁵ and also because of the well determined fact that the nutritive and reproductive structures of the soft parts serve as far more satisfactory bases for classification than shell characters. However, for the sake of clearness, synonyms for the revised names appear in the parentheses, as indicated in the case of *Lastena ohioensis* mentioned above.

Since it has been observed that the nucleus of the pearl, found in the Fresh-water Mussel, is that of the remains of some mite or worm it is concluded that these parasites so irritate the glandular mantle that an abnormal pearly excretion is laid over the irritant in regular, but usually, irregular, layers while these pearl glands endeavor to functionate normally in building the inner, or pearly, lining of the shell. Hence, the writer, while engaged in securing data for cataloguing the *Naiades of Missouri*, devoted much incidental attention to the study of Mussel parasites since the Pearl Mussel Investigation occupied the author's attention for most of the four years, (1911-1915), when the greater part of the State came under his actual personal survey. As it was his pleasure and profit to make studies of the *Naiades* at the U. S. Fisheries Biological Station, Fairport, Iowa, where both natural and artificial production of the fresh-water pearl is experimentally studied, some data have been secured under the auspices of this Station. For the identification of the following tabulated list the writer is indebted to Prof. H. Walton Clark, one of the personnel of the Fairport Station and a recognized authority on the natural production of the pearl.

In order that the delicate soft parts of these parasites, such as antennæ, thoracic appendages, etc., may be preserved and kept pliable for future study Kœnigke's Fluid is used, the receipt of which is submitted here:—

³ A. D. Howard, Science, N. S., XI, pp. 353-355, Sept. 4, 1914.

⁴ American Midland Naturalist, IV, No's. 3-13, 1915-1916.

⁵ L. S. Frierson, Nautilus, XXVIII, pp. 6-8; also E. G. Vanatta, Acad. Nat. Sci. Phil., pp. 549-559, Dec. 8, 1915.

PARASITES OF MISSOURI NATADES.

MISSILE PARASITE.	KIND.	MUSSEL HOST.	PARTS AFFECTED.	LOCALITY.
1. <i>Atax (Nataicola) ingens</i> <i>Koenike</i>	Mite	<i>Nephroniatas ligamentina</i> (Lam.) (= <i>Lamp. ligamentina</i>).	Gills	White R., Hollister.
2. <i>Atax tumidus</i> Wolcott.	Mite	<i>Lasimpona costata</i> (Raf.) (= <i>Symphynota costata</i> (Raf.))	Gills and Palps.	White R., Hollister.
3. <i>Atax stricta</i> Wolcott.	Mite	<i>Proptera alata</i> (Say) (= <i>Lamp- silis alata</i>)	Branchial Papil- lae	Platte R., Agency Ford.
4. <i>Atax ypsilophorus</i> (Bonz)	Mite	<i>Lastena suborbiculata</i> (Say) (= <i>Anodontia suborbiculata</i> (Say)).	Gills and Papillae	L. Contrary, St. Joseph.
5. <i>Aspidogaster conchicola</i> Von <i>Baer</i>	Fluke (Final Form)	<i>Lasmanus fragilis</i> (Raf.) (= <i>Lamp. gracilis</i> (Bar.) (Final Host)	Pericardium and Nephridium	Osage R., Warsaw.
6. <i>Catylopsis insignis</i> Leidy	Fluke (Final Form)	<i>Anodontia grandis</i> Say. (Final Host)	Gills	Mud Lake, Kenmoor.
7. Marginal-Cyst <i>Distomid</i> of <i>Kelly</i>	Trematode	<i>Lampsilis cardia</i> (Raf.) (= <i>Lampsilis ventricosa</i> (Fernes))	Mantle Margin	Black R., Williamsville.
8. <i>Distomid</i> of Osborn	Trematode	<i>Streplitus edentulus</i> (Say)	Mantle Margin	Osage R., Csecola.

Glycerine	2	parts by volume
Distilled Water	3	" " "
Glacial Acetic Acid	2	" " "
Absolute Alcohol	1	" " "

The author has noted a common teratologic, if not pathologic condition in the shell, usually that of *Quadrula quadrula* Raf. (= *Q. lachrymosa* (Lea)) and also of *Anodonta grandis* Say, that is, an extremely emarginated postventral portion, due no doubt to the attacks of ecto-parasites along the mantle margins at this point. Why the attacks should be mostly made at this point is a question. Other results of this parasitism is a splitting of the gills from this post-ventral point to the dorsal side. From the fact that this dividing of the gills and the "tucking in" of the shell take place equally on both sides we would ascribe the cause to that of sympathetic nervous reaction. Probably many of the so-called new species or varieties that have crept into our catalogues on *Naiades* are only these pathologic or teratologic individuals and as a result "confusion has been made more confused."

Although the lacustrine forms of *Naiades* are more greatly parasitized than those of the fluviatile due to more favorable ecologic conditions for the parasites, yet the formation of free pearls are more rare in the former since these are usually the thin-shelled forms that do not need to secrete such a limy or nacreous supply from the mantle glands. The thick-shelled forms of the lake or sluggish stream, however, are, as a rule, good pearl producers since the greater abundance of parasites under such conditions insure greater occasion for pearl formation.

THE BIRD LOVER.

BY BROTHER ALPHONSUS, C. S. C.

The lover of birds is an enthusiast. If he were not, he would not be a lover of birds. Only those whose interest in any subject is intense and unabating can in truth be said to have enthusiasm in its pursuit. What, it may be asked, will lead a person to spend his precious time upon some matter apparently unworthy of such a sacrifice? There is in the thing something that awakens a

responsive sentiment. An elevated feeling, as we know instinctively, is not the result of calculation or forethought, but comes upon us spontaneously—just how we do not understand. By cultivation, the awakened sentiment grows in intensity, and the emotional element contributes not a little to the persistent devotion that is a characteristic of enthusiasm.

Now let us apply these ideas to the subject of bird life. There is in all living things much of paramount interest, and worthy of man's serious study. Life, in all its grades, is a great mystery, and to investigate its myriad phases, naturally challenges the astuteness of the human intellect. And when those beautiful creatures which we call birds are the particular form of life chosen for patient observation, we have an interest that quickly grows to be intensely satisfying. So much is manifest in the life of a bird that both our senses and our intellect find matter for almost indefinite investigation.

No doubt most persons at first do not acquire a scientific interest in birds, but are led gradually from the emotional to the philosophic aspect of the subject. I suppose also that individual temperament will decide what amount of attention each one will eventually give to the aesthetic and scientific phases of ornithology. In this matter, I think much will depend upon one's leisure for the pursuit. If one cannot observe regularly, there is less likelihood that anything more than an aesthetic interest in birds will be developed. But even this is well worth the time that is spent in studying the habits of the many species of birds which are found in our parks or in the country.

What pure pleasure is there in strolling leisurely into the country, with only nature for our companion. As soon as we reach the limits of the city, we are greeted by the clear notes of the Song Sparrow. And as we advance a little farther, the Field and Vesper Sparrows will repeat for us their charming strains. Another songster that is sure to challenge our attention is the Warbling Vireo, almost as persistent a singer as the Song Sparrow. And if our walk is taken in the month of May then the bird chorus will bewilder us. Catbirds, Thrashers, Wrens, Warblers, Finches, Grosbeaks, Orioles, and many other species are then in full song.

As compared with those who have an aesthetic interest in birds, there are few with opportunity for a scientific study of ornithology. It has, however, been a matter of wonder to the

writer that many who were brought up on farms, or who have lived in the country for much of their lives, have yet so little interest of any kind in bird life. Naturally we should expect our scientific ornithologists to come from this class. Why are so few of such persons interested in birds? I think there are various reasons for their apathy to so delightful a pursuit. Although they live in the country, their sympathy with nature remains undeveloped. They lead lives that are as artificial as those of the city. The newspaper, their own avocation or profession, consume all their time; or if they have any leisure, it may be spent in novel reading or frequenting the shows of the neighboring town. Thus most persons become slaves to the conventions of civilization.

Can anything be done to lessen this dullness and insensibility to the superior pleasures that nature affords her devotees? Yes, there seems now to be an excellent opportunity to well-nigh revolutionize the sad condition that has existed for generations. This is to get our young people interested in bird life, and happily to do so is a pleasant task for teacher or friend. The young are born naturalists, waiting only for the necessary encouragement in order to develop their endowments.

Beyond doubt the youthful student of ornithology is likely to become a true bird lover. Such habits of mind as attention, observation, judgment, appreciation of the beautiful being in the process of formation, the impulse to persevering efforts to gain all the facts of this branch of natural history is strong and stimulating. Probably no other pursuit is as fruitful in opportunities to cultivate these indispensable requisites of an educated man. At the same time, it is also probably true, that hardly any other study is less irksome than the observations of the ornithologist. So while accumulating valuable scientific knowledge, the student of bird life is strengthening his mental power continually. How much better is it for the boy or youth who acquires a taste for ornithology to spend his free hours in such a way as to develop his body and mind than to fritter away the precious years of his early life in unfruitful diversions.

Incidentally many other advantages will be the result of the persistent labors of the bird lover. Fresh air, a good appetite, no loss of sleep, and above all an unfailing cheerfulness are but a few of these advantages. Nothing need be said to prove how great a gain it is to possess these benefits. I cannot refrain, however,

from enlarging a little on the last and best of the blessings just enumerated. The excellent health that is always enjoyed by a naturalist gives him the fine virtue of cheerfulness. If you meet him on one of his rambles, you will be sure to receive a friendly greeting. And should you desire a little diversion yourself, take a walk with him, and you will soon forget all annoyances and become infected with his buoyancy of mind and heart. Fortunate is the community that has a number of naturalists to keep it fresh and sanguine.

But the bird lover confers yet more benefits upon his neighbors and friends. His knowledge of bird life will make him welcome to bird societies, either local or in places distant from his home. So soon as any person is known to be interested in birds, his acquaintance will be eagerly sought by other bird lovers. And there is in all lovers of birds a sympathy for one another that is admirable. Although strangers in other respects, as soon as ornithologists meet they are at home in each other's company. They seem also to possess certain traits of temperament that make their society congenial to themselves. Next to religion, nothing can develop sympathy for all of God's creatures more readily than the love of nature.

Let me now, before ending this short paper, emphasize the educational value of the study of birds. It has been admitted by noted educators that the system of instruction in our schools, colleges, and universities does not give the fullest development possible to their students. Too much stress is laid upon class exercises and tests, and too little upon the close companionship with nature. The opportunities for the delightful study of the varied phenomena of nature are greatly undervalued. All the requisites of an open and sympathetic mind are found in the study of the creatures that live in our midst. Briefly the bird lover is introduced into a world that is well-nigh limitless in the interest it can arouse in its devotees. Beauty, song, instinct, habits, migration, distribution are but a few of the aspects of ornithology. Every bird that flies within view at once enlists the attention of the observer, who knows that he may learn something new and noteworthy. Try to estimate, if you can, the total effect of a life devoted to the study of birds. If there is an earthly paradise, it will be found in the fresh fields and secluded woods where the birds raise their sweet voices in praise of their Maker.

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